Managing your Product Complexity
Product Complexity Affects Every Industry and Every Customer

“We view Complexity Management as an intelligent version of cost management.”
Frank Buerschgens, John Deere
Complexity Management Journal

“Complexity Management is essential for a successful management strategy.”
Prof. Günther Schuh
Deutschlandfunk

“Automotive engineering describes the art of answering complex challenges with feasible answers. This art becomes a bit more demanding with every new vehicle generation.”
BMW Science Club

“As the number of options increases, the effort required to make a good decision escalates as well, which is one of the reasons that choice can be transformed from a blessing into a burden.”
The Challenge

Even the most successful companies struggle with finding the optimal level of complexity for their products. This sentiment is reflected in studies as well. They have shown that 78% of all companies feel that they have too many product varieties.

As a product ages, the variants associated with the product increase as well. The majority of companies experience an increase in product variants as their products move along the product lifecycle. The worst performers even experience an eightfold increase in product variants. Strategic product planning and active complexity management are methods to proactively prevent such increases. Yet only 59% of companies follow a continuous strategic product planning program and even worse, only 38% of companies perform regular complexity management.

It is common knowledge that the automotive industry is one of the frontrunners for this topic. Yet, even BMW, one of the companies that is most active in the reduction of product variants and complexity, currently uses 1.3 million varieties of bolted connections. It is at present trying to reduce this number to 2,500 and has an engineer assigned full-time to drive this number down even further.

The Increase of Varieties Along the Product Life Cycle

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Complexity and Product Variety Management Has Become a Challenge in Almost All Industries
Examples of Controlled Complexity

A Manufacturer of Electrical Control Cabinets Assesses Product Complexity

The different operational environments and applications of electrical control cabinets lead to a large variant diversity. The global market presence of the manufacturer largely amplified this effect. The handling of such large sized products and the early creation of variety along the assembly line, caused a major problem for the manufacturer’s assembly and order management processes. Opportunities were identified when analyzing the product and variant diversity and by examining the complexity costs. In the end, expensive variants were also eliminated.

An Inserting Machine Manufacturer Charges According to Complexity Costs

In the machinery and equipment industry, the variant analysis should be combined with a focus on the single modules of the equipment. Because the whole equipment is generally configured according to customer specifications, every piece of equipment is unique. However, the components of such equipment are identical and used across multiple machines. For this manufacturer a specific component group’s variance caused various troubles along the order management process. By applying the complexity cost analysis, the company was able to allocate costs on a cause-fair basis and thus, reduce its expenses.
Reducing Variety for Fixtures in the Furniture Industry

Fixtures of sliding doors show a great variance depending on their usage. Our client is a supplier to furniture manufacturers. In this position, the company had little influence over its customer’s designs and was bound to the requirements of the furniture manufacturer. Bundling options revealed new opportunities to reduce the variance. In addition, because the complexity costs were reduced, large financial savings were achieved as well.

A Vacuum Pump Manufacturer Increases Its Processes through Complexity Management

When this manufacturer of vacuum pumps optimized its product and parts variety, the result was a significantly smoother order management process. Less costs were now associated with the complexity of the products bringing about large annual savings. The reorganization of the company’s processes revealed an added 20% of cost savings compared to the current state.
Implementing Comprehensive Complexity Management at a Global Truck Manufacturer

This industry leader exploited the existing large savings potential by using common parts across all of its truck lines. By anchoring complexity management at the beginning of the value chain, specifically in the product development process, the company was able to save large amounts on an annual basis. Knowing the exact market requirements and their application helps to avoid variant and complexity costs throughout the lifecycle. In the end, because the amount of part variety was known, volumes could now be estimated accurately and further combinations were possible. Additional savings were achieved when talks with suppliers were started.

Reducing Product Complexity at Volkswagen

When designing its new product lines for its Audi A3 and Golf cars, Volkswagen took a close look at each individual part across all product combinations. Searching for what the customer really values and cutting costs where the customer is not going to appreciate it, helped the company to save $30 million annually from the start. In addition to just reducing part costs, savings from less warehouse space necessary, reduced tooling costs and more power over suppliers were also achieved.

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Up to 144 Varieties of Floor Mats for the Same Car Model

45 Variants of Vent Hoses for One Vehicle Type
The Results

Reducing your product complexity can result in large savings on an annual basis and over the lifetime of products. In over 20 years of helping companies address their product complexity, we have, on average, experienced the following savings and improvements potentials:

- 5-20% of cost savings over 2-5 years by reducing engineering costs, material expenditures and lifecycle savings on servicing, spare parts and storage
- A 20-40% reduction of SKUs in the product portfolio
- 20-30% of raw material cost and supplier cost reduction by identifying cost drivers and analyzing SKU variants
- 30-40% of cost savings through high product commonalities
- An increase in 3-5% EBIT

Our Approach

Especially in the current economic climate, managing your product portfolio proactively is indispensable. We will support you in managing product complexities across diverse product lines and businesses.

We can reflect on more than 20 years of experience in complexity management and have access to the newest trends and developments through our close collaboration with scientific research institutes and universities.

We create transparency across your product lines and businesses by utilizing our unique software, the Complexity Manager. Our tool enables you to create a quick overview of your current product structure and simulate alternative scenarios, allowing you to arrive at an optimal solution with consideration of all factors.

In addition, we always ensure a holistic view, matching the market view with technical information. We look across the three dimensions of product, process and behavior to reach an optimal state. If you are looking for an experienced partner in complexity management, you will find just that in Schuh & Company.

Complexity Management Should Be Regarded Holistically on Three Levels
Company

Schuh & Company focuses on providing solutions and methods for managing the ever increasing complexity of today’s enterprises, products and processes. With this approach, the company was established as an implementation-oriented problem solver in the industry. Today the company consists of about 50 people committed to ensure your company’s success through their work as strategy and organizational consultants, as well as management coaches.

Schuh & Company is headquartered in Aachen, Germany, with subsidiaries in St. Gallen, Switzerland (since 1991), and Atlanta, GA, USA (since 1997).

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